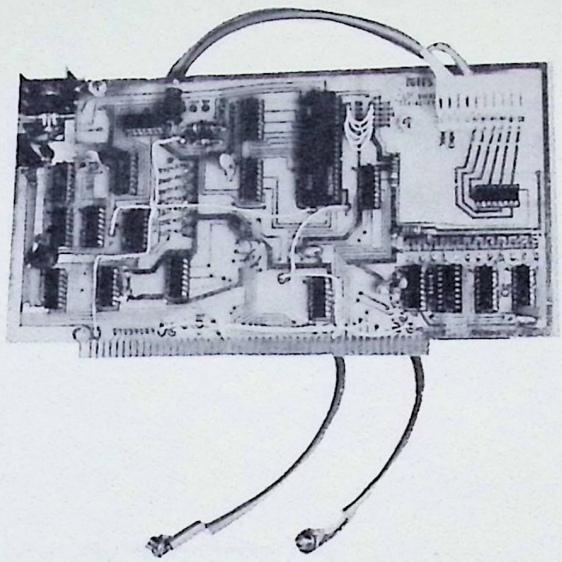
Technical Information

AUDIO CASSETTE RECORD INTERFACE (88-ACR)



The 88-ACR allows reading and writing of data on audio cassettes, using frequency modulation. The 88-ACR may be used with any medium (or better) quality cassette tape. (Music quality recorders generally give better performance than smaller portable recorders.)

Features

The 88-ACR may be used with machine language Read/Write programs or with ALTAIR BASIC commands (8K and Extended versions).

ALTAIR BASIC commands, CSAVE and CLOAD, are used to save and load programs or data arrays through the 88-ACR.

ALTAIR software is available on audio cassette tapes for loading into the ALTAIR through the 88-ACR.

Uses any tape recorder with less than 2% wow and flutter. The better the speed stability, the better the data integrity.

Hardware

General Description:

Consists of 88-SIOB (Serial I/O Board) mated to a MODEM (Modulator/ Demodulator) board.

Requires one slot in the ALTAIR bus.

Connects to a tape recorder via miniature phone jacks (user supplies the interconnect cord).

MODEM Circuit Operation

Operates by frequency modulating audio frequencies in the record (write) mode, and demodulating these tones in the play (read) mode.

To record data, digital information from the ALTAIR is changed to audio frequencies by dividing the 2MHz system clock at different rates. A logic 1 gives a 2400 Hz tone, a logic 0 gives an 1850 Hz tone.

To read data, audio tones are filtered and then demodulated by a phase locked loop.

88-SIOB Operation

Digital information is in Universal Asynchronous Receiver/Transmitter (UART) format (start bit, 8 data bits, stop bit) at 300 baud.

The UART converts ALTAIR write data from parallel to serial form for the modulator.

The UART converts serial read data from the demodulator to parallel form for the ALTAIR.

Specifications

Modulation Frequencies: Logic 1-2400 Hz, Logic 0-1850 Hz.

Data Rate: 300 baud, 30 bytes/second.

Bit Format: UART type (1 start bit, 8 data bits, 1 stop bit).

Output Level: 100 MV p-p sawtooth, suitable for "MIC" input of recorders.

Output Impedance: 1.5K ohms.

Input Level: 200 MV p-p to 10 V p-p.

Input Impedance: 100K ohms.

Speed Tolerance: 2% without adjustment of PLL, 5% with adjustment of PLL.

Connector Type: 3.5 mm (⅛ in.) miniature phone jack.

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2450 Alamo S.E. / Albuquerque, New Mexico 87106